

REMARKS

Herein, the "Action" or "Office Action" refers to the Office Action dated 09/28/2005. Claims 1-57 are presently pending. Claims amended herein are none. Claims withdrawn or cancelled herein are none. New claims added herein are none.

The Office rejects all of the pending claims under §103. For the reasons set forth below, the Office has not made a *prima facie* case showing that the rejected claims are obvious under §103. Accordingly, Applicant respectfully requests reconsideration and allowance of all of the claims of the Application and that the case be passed along to issuance.

Claim Rejections under §103

The Office rejects claims 1-13, 15, 20-32, 34, 37-43, 46-51 and 54 under USC § 103(a) as being unpatentable over US Patent No. 5,799,173 to Gossler et al. (hereinafter, "Gossler") in view of US Patent No. 6,728,748 to Mangipudi et al. (hereinafter, "Mangipudi") (*Office Action* p.3).

The Office rejects claims 14, 16-19, 33, 35-36, 44-45, 52-53 and 55-57 under USC § 103(a) as being unpatentable over Gossler in view of Mangipudi and further in view of US Patent No. 6,321,263 to Luzzi et al. (hereinafter, "Luzzi") (*Office Action* p. 7).

Overview of the Application

The Application describes a technology for remotely and dynamically monitoring the availability of the members of a load-balancing cluster. The technology provides a dynamic, exocluster application-layer monitor for

1 dynamically monitoring and/or dynamically controlling the members of a load-
2 balancing cluster.

3 The exocluster application-layer monitor is an active monitor—a controller.
4 It may actively control the members that it monitors. The exocluster application-
5 layer monitor is protocol agnostic. The exocluster application-layer monitor can
6 dynamically adjust so that it can monitor all of the members of the cluster as
7 members are added and removed.

8 9 **Overview of the Cited References**

10 The Office cites Gossler as its primary reference in its obviousness-based
11 rejections. The Office cites Mangipudi and/or Luzzi as its secondary reference(s)
12 in its obviousness-based rejections.

13 14 **Gossler**

15 Gossler describes a technology for dynamically controlling the number of
16 servers in a transaction system comprising at least one service unit for processing
17 service requests. Each service unit comprises a queue for receiving and queuing
18 the incoming service requests and a plurality of servers for executing the service
19 requests.

20 Gossler describes a technology that uses the following three steps from the
21 point of view of the queue of each service unit:
22
23
24
25

- monitoring the current number of service requests and the current number of servers allocated to a service unit of a service point,
- determining an optimized number of servers for a service unit dependent on the current number of service requests and the current number of servers, and
- allocating the optimized number of servers for a service unit of a service point.

Mangipudi

Mangipudi describes a technology which facilitates categorization and routing of Web traffic based on Class of Service (COS). Mangipudi describes that a group of host computers can be grouped into different clusters (or classes) to facilitate provision of differentiated services. One of these host computers is referred to as the routing host 200 (*Mangipudi*, col.9 lns.1-6). The routing host 200 includes a policy engine (APE) 210, and is capable of receiving requests from client devices 202 (*Mangipudi*, col.9 lns.1-6). An incoming request from a client device 202 is received by the routing host 200 which assign a class to the request (*Mangipudi*, col.9 lns.20-25). The policy engine 201 in conjunction with the routing host 200 then distribute the incoming traffic to the most available server for that class (*Mangipudi*, col.9 lns.20-25).

Luzzi

Luzzi describes a technology which facilitates monitoring, from a client computer system, the performance of an application program residing on a server

1 computer system. A probe program residing at the client computer generates
2 requests for the service of the application program and records transaction records
3 based upon the service responses therefrom (*Luzzi*, col.5 lns.5-45).

4 5 **Discussion of the Claims**

6 **Claim 1** recites a method comprising: “dynamically determining present
7 members of a load-balancing cluster” and “monitoring application-layer
8 availability of one or more members of the cluster as such availability is observed
9 from a client-perspective.”

10 Glosser does not teach or suggest monitoring application-layer availability
11 of one or more members of the cluster as such availability is observed from a
12 client-perspective, as recited in claim 1. The Office acknowledges that Glosser
13 does not describe such, and cites Mangipudi as curing the deficiencies of Glosser
14 (*Office Action* p.3, *Mangipudi* col.4 lns.28-65 and Fig. 2).

15 However, Mangipudi fails to cure the deficiencies of Glosser, as Mangipudi
16 does not teach or suggest monitoring application-layer availability of one or more
17 members of the cluster as such availability is observed from a client-perspective,
18 as recited in claim 1.

19 To support its assertion of obviousness, the Office points to the routing host
20 200 of Mangipudi, apparently arguing that the monitoring of members of a cluster
21 206 by the routing hosts 200 teaches or suggests monitoring application-layer
22 availability of one or more members of the cluster as such availability is observed
23 from a client-perspective, as recited in claims 1 (*Office Action* p.3, *Mangipudi*
24 col.4 lns.28-65 and Fig. 2). Applicant contends that the position taken by the
25 Office is erroneous for at least the several reasons described below.

"Monitoring Application-layer Availability"

First, as recited in claim 1, the monitoring is not just of the "availability" of one or more members of the cluster, but is instead of the "application-layer availability" of one or more members of the cluster. Applicant submits that Mangipudi fails to cure the deficiencies of Gossler, as Mangipudi does not disclose monitoring the "application-layer availability" of its servers.

The Office cites to Mangipudi as teaching monitoring the application-layer availability of one or more members of a cluster (*Office Action* p.3, *Mangipudi* col.4 lns.28-65 and Fig. 2). However, Applicant submits that the cited section does not teach or suggest anything related to the monitoring of application-layer availability of any cluster member. In fact, the only mention of application layer in the cited passage is directed to differentiating client requests into various classes. There is no teaching or suggestion of monitoring the application-layer availability of one or more members of the cluster, as recited in claim 1.

Instead, of monitoring the application-layer availability of one or more members of a cluster, Mangipudi simply describes monitoring "workload and availability of servers to enable requests to be sent to the most appropriate and optimal server" (*Mangipudi*, col.4 lns.41-45). In other words, the monitoring described in Mangipudi is like the conventional monitoring of a typical load-balancing system, similar to those described in the Background section of the present Application (*Application*, pp.1-7). The Office has provided no evidence from Mangipudi that it teaches or suggests monitoring servers at the "application-layer" (*i.e.*, the layer for communications between computing systems).

1 More particularly, Applicant respectfully submits that Mangipudi does not
2 even disclose “application-layer availability” of the members of a cluster.
3 Application-layer availability is a concept discussed in detail throughout the
4 present Application. For example, “application-layer availability” is discussed at:
5 page 3 line 19; page 5 line 5 to page 7 line 14; and at page 18 line 6 to page 19 line
6 6. Still further, since “application-layer availability” is the focus of the
7 “monitoring” of claim 1, Mangipudi clearly cannot teach or suggest monitoring
8 application-layer availability of a cluster member, if it does not even disclose the
9 very object of such monitoring.

10 Therefore, applicant submits that Mangipudi fails to cure the deficiencies of
11 Gossler, since neither the cited portion of Mangipudi nor any other portion of
12 Mangipudi teaches or suggests monitoring application-layer availability of one or
13 more members of the cluster, as recited in claim 1.

14
15 **“As Such Availability Is Observed From A Client-Perspective”**

16 Claim 1 also recites “as such availability is observed from a client-
17 perspective.” Applicant submits that Mangipudi fails to cure the deficiencies of
18 Gossler regarding this aspect of claim 1, as Mangipudi does not teach or suggest
19 observing such availability from the client-perspective.

20 The Office cites to Mangipudi as teaching monitoring application layer
21 availability of one or more members of the cluster as such availability is observed
22 from a client-perspective (*Office Action* p.3, *Mangipudi* col.4 lns.28-65 and Fig.
23 2). Regarding this limitation, the Office states that Mangipudi teaches that such
24 availability is “monitored from a routing host located outside the cluster” (*Office*
25 *Action* p.3, *Mangipudi* col.4 lns.28-65 and Fig. 2). Apparently, the Office is

1 arguing that the routing host 200 of Mangipudi is observing from “a client
2 perspective”. Applicant contends that the position taken by the Office is
3 erroneous for at least the reasons described below, and that any monitoring from
4 the perspective of the routing host 200 is clearly not monitoring from “the client-
5 perspective”, as this term is described in the Application and used in Applicant’s
6 claims.

7 Regarding the routing host 200, Mangipudi describes that, “hosted web
8 sites are distributed among several host computers. One host among these,
9 referred to as the routing host 200, is capable of receiving requests from one or
10 more client devices 202” (*Mangipudi*, col.7 lns.1-20 and Figs.2 and 3).
11 Mangipudi describes that the routing host 200 is not capable of servicing requests
12 from client devices 202, but instead, it routes the request(s) to service hosts 206
13 which then service the request and send back response data to the client
14 (*Mangipudi*, col.7 lns.9-13).

15 Applicant submits that the monitoring model disclosed by Mangipudi is
16 analogous to the “local” or “endocluster” monitor model, which is shown in Fig. 1
17 and described on p. 5, lines 19-23 in the Background section of the Application.
18 These lines state that, “Local application-layer monitoring is ... performed by the
19 node manager and/or the nodes themselves. For example, if node manager 110
20 monitored the availability of the nodes 112a-f, then this is local monitoring. This
21 type of monitoring may be called “endocluster” application-layer monitoring”.

22 Just like the node manager 110 (shown in Fig. 1 of the Application) which
23 monitors the nodes 112a-f, Mangipudi’s routing host 200 monitors a collection of
24 servers (e.g., Mangipudi’s service hosts 206a-c). Both Mangipudi’s routing host
25 200 and the exemplary node manager 110 are not counted amongst the servers

1 (e.g., Mangipudi's servers 206a-c and the exemplary nodes 112a-f). Thus,
2 Mangipudi discloses a model that is directly analogous to that which the Applicant
3 has described as being "endocluster" monitoring in its Application.

4 The Application then defines (at page 5 line 24 to page 6 line 10)
5 "endocluster" monitoring to be the opposite of "exocluster" monitoring. The text
6 from the Application re-labels "exocluster" monitoring to be "client-perspective"
7 monitoring.

8 Thus, Applicant submits that it follows that Mangipudi discloses a model
9 that is directly opposite of that which is recited in the claim. Applicant submits
10 that Mangipudi discloses a monitoring model that is the opposite of "client-
11 perspective" monitoring. Therefore, Applicant submits that Mangipudi does not
12 disclose "as such availability is observed from a client-perspective," as recited in
13 the claim.

14 As shown above, Applicant submits that Mangipudi fails to cure the
15 deficiencies of Gossler, as Mangipudi fails to teach or suggest "as such availability
16 is observed from a client-perspective," as recited in claim 1.

17 Accordingly, claim 1 is allowable over the Gossler-Mangipudi combination
18 for at least the reasons described above and Applicant respectfully requests that
19 the §103 rejection be withdrawn.

20
21 Claims 2-13, 15 and 20 are allowable over the Gossler-Mangipudi
22 combination by virtue of their dependency upon allowable claim 1. Additionally,
23 one or more of these claims may also be allowable for independent reasons.
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Claims 14 and 16-19 are allowable over the Gossler-Mangipudi combination by virtue of their dependency upon allowable claim 1. Claims 14 and 16-19 are also allowable over the Gossler-Mangipudi-Luzzi combination because Luzzi does not address the deficiencies of the Gossler-Mangipudi combination as described above in response to the rejection of claim 1. Additionally, one or more of these claims may also be allowable for independent reasons.

Claim 21 has been rejected by the Office for the same reasons as it rejects claims 1-2 above. If it is valid to reject this claim for the same reasons that claims 1-2 above are rejected, then Applicant submits that this claim is allowable over the Gossler-Mangipudi combination for the reasons described above in response to the rejection of claims 1-2.

Claims 22-32, 34 and 37 are allowable over the Gossler-Mangipudi combination by virtue of their dependency upon allowable claim 21. Additionally, one or more of these claims may also be allowable for independent reasons.

Claims 33 and 35-36 are allowable over the Gossler-Mangipudi combination by virtue of their dependency upon allowable claim 21. Claims 33 and 35-36 are also allowable over the Gossler-Mangipudi-Luzzi combination because Luzzi does not address the deficiencies of the Gossler-Mangipudi combination as described above in response to the rejection of claim 1. Additionally, one or more of these claims may also be allowable for independent reasons.

1 **Claims 38** has been rejected by the Office for the same reasons as it rejects
2 claims 1-2 and 10 above. . If it is valid to reject this claim for the same reasons
3 that claims 1-2 and 10 above are rejected, then Applicant submits that this claim is
4 allowable over the Gossler-Mangipudi combination for the reasons described
5 above in response to the rejection of claims 1-2 and 10.

6
7 **Claim 39** has been rejected by the Office for the same reasons as it rejects
8 claims 1-2, 4, 7, and 10 above. If it is valid to reject this claim for the same
9 reasons that claims 1-2, 4, 7, and 10 above are rejected, then Applicant submits
10 that this claim is allowable over the Gossler-Mangipudi combination for the
11 reasons described above in response to the rejection of claims 1-2, 4, 7, and 10.

12
13 **Claims 40-43** are allowable over the Gossler-Mangipudi combination by
14 virtue of their dependency upon allowable claim 39. Additionally, one or more of
15 these claims may also be allowable for independent reasons.

16
17 **Claims 44-45** are allowable over the Gossler-Mangipudi combination by
18 virtue of their dependency upon allowable claim 39. Claims 44-45 are also
19 allowable over the Gossler-Mangipudi-Luzzi combination because Luzzi does not
20 address the deficiencies of the Gossler-Mangipudi combination as described above
21 in response to the rejection of claim 39. Additionally, one or more of these claims
22 may also be allowable for independent reasons.

23
24 **Claim 46** has been rejected by the Office for the same reasons as it rejects
25 claims 1, 3-4, 6-7 and 10 above. If it is valid to reject this claim for the same

1 reasons that claims 1, 3-4, 6-7 and 10 above are rejected, then Applicant submits
2 that this claim is allowable over the Gossler-Mangipudi combination for the
3 reasons described above in response to the rejection of claims 1, 3-4, 6-7 and 10.

4
5 **Claims 47-51** are allowable over the Gossler-Mangipudi combination by
6 virtue of their dependency upon allowable claim 46. Additionally, one or more of
7 these claims may also be allowable for independent reasons.

8
9 **Claims 52-53** are allowable over the Gossler-Mangipudi combination by
10 virtue of their dependency upon allowable claim 46. Claims 52-53 are also
11 allowable over the Gossler-Mangipudi-Luzzi combination because Luzzi does not
12 address the deficiencies of the Gossler-Mangipudi combination as described above
13 in response to the rejection of claim 46. Additionally, one or more of these claims
14 may also be allowable for independent reasons.

15
16 **Claim 54** has been rejected by the Office for the same reasons as it rejects
17 claims 1-2 and 10 above. If it is valid to reject this claim for the same reasons that
18 claims 1-2 and 10 above are rejected, then Applicant submits that this claim is
19 allowable over the Gossler-Mangipudi combination for the reasons described
20 above in response to the rejection of claims 1-2 and 10.

21
22 **Claims 55-57** are allowable over the Gossler-Mangipudi combination by
23 virtue of their dependency upon allowable claim 54. Claims 55-57 are also
24 allowable over the Gossler-Mangipudi-Luzzi combination because Luzzi does not
25 address the deficiencies of the Gossler-Mangipudi combination as described above

1 in response to the rejection of claim 54. Additionally, one or more of these claims
2 may also be allowable for independent reasons.

3 **Dependent Claims**

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5 In addition to its own merits, each dependent claim is allowable for the
6 same reasons that its base claim is allowable. Applicant submits that the Office
7 withdraw the rejection of each dependent claim where its base claim is allowable.

8 **Conclusion**

9
10 All pending claims are in condition for allowance. Applicant respectfully
11 requests reconsideration and prompt issuance of the application. If any issues
12 remain that prevent issuance of this application, the Office is urged to contact the
13 undersigned attorney before issuing a subsequent Action.

14
15 Respectfully Submitted,

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